

## CLAIMS

What is claimed is:

1. A simulation system for evaluating an application, comprising:
  - a description file for describing a host protocol specification defining an environment in which the application is operated, the description file containing a project object corresponding to the host protocol specification;
  - the project object describing a message structure that is compatible with the host protocol specification; and
  - a host simulator coupled to the description file, being adaptable in response to accessing the project object, for communicating a message with the application, the host simulator describing the message by a dual representation technique in which a first representation of the message provides a flattened version of the message, and a second representation of the message provides a hierarchical version of the message.
2. The simulation system of Claim 1 wherein the host simulator further includes a communication framework for supporting at least one communication protocol.
3. The simulation system of Claim 2 wherein the at least one communication protocol is selected from the group of TCP/IP, Named Pipes, and X.25.

4. The simulation system of Claim 1 wherein a hierarchical markup language is used in the description file for message definition and description.

5. The simulation system of Claim 4 wherein the hierarchical markup language is XML.

6. The simulation system of Claim 1 wherein the first representation of the message is used for data evaluation; and  
wherein the second representation of the message is used for display.

7. The simulation system of Claim 2 wherein the host simulator further includes a message parser for constructing and analyzing the message.

8. The simulation system of Claim 2 wherein the project object includes a message format for describing message field characteristics associated with the message structure.

9. The simulation system of Claim 8 wherein the message field characteristics are selected from the group of name, size, position, and default value.

10. The simulation system of Claim 8 wherein the project object further includes a group format for storing selected message fields in a group.

11. The simulation system of Claim 2 wherein the project object further includes a command sequence list.

12. The simulation system of Claim 2 wherein the project object further includes a message list.

13. The simulation system of Claim 2 wherein the host simulator further includes a message list and a command sequence list.

14. The simulation system of Claim 2 wherein the host simulator further includes a message parser for parsing the message.

15. The simulation system of Claim 2 wherein the host simulator further includes a language translator coupled between the message parser and GUI for translating XML to HTML.

16. A simulation system for evaluating an application, comprising:  
a description file for describing a host protocol specification defining an environment in which the application is operated, the description file containing a project object corresponding to the host protocol specification;

a communication framework for supporting at least one communication protocol.

18. The simulation system of Claim 16 wherein the project object includes a message format for describing message field characteristics associated with the message structure.

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20. The simulation system of Claim 16 further including a command sequence list having at least one command sequence.

21. The simulation system of Claim 20 wherein the host simulator is activable, in response to receiving a predetermined input, to execute a predetermined command sequence.

22. The simulation system of Claim 21 wherein the predetermined input is selected from the group of a predetermined message and a user request.

23. The simulation system of Claim 21 wherein another simulator is adapted to simulate the application, such that the other simulator communicates with the host simulator; and

the other simulator is coupled to the description file for accessing the project object corresponding to the host protocol specification.

24. A simulation system for evaluating an application, comprising:  
a description file for describing a host protocol specification defining an environment in which the application is operated, the description file containing a project object corresponding to the host protocol specification;

a communication framework for supporting at least one communication protocol.